201-16037

JuanB Perez/DC/USEPA/US
09/20/2005 02:07 PM

To NCIC HPV@EPA
cc
bcc
Subject Fw: HPV Submission, CAS Number 15890-25-2

----- Forwarded by JuanB Perez/DC/USEPA/US on 09/20/2005 02:07 PM -----

"Bendig, Erin A." <EBendig@rtvanderbilt.com >
09/20/2005 09:14 AM

To NCIC OPPT@EPA, Rtk Chem@EPA
cc jim-keith@americanchemistry.com
Subject RE: HPV Submission, CAS Number 15890-25-2

Attached, please find the updated test plan for CAS#15890-25-2. Please replace the existing submittal in your file and website with the one attached.

Please let me know if you have any questions.

Kind regards,

Erin

<<15890-25-2TestPlanSeptember20_2005.doc>>

Erin A. Bendig

Product Risk Manager

R.T. Vanderbilt Company, Inc.

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-----Original Message-----
From: Bendig, Erin A.
Sent: Friday, August 26, 2005 2:21 PM
To: 'oppt.ncic@epamail.epa.gov'; 'chem.rtk@epamail.epa.gov'
Cc: Vanderbilt Jr., Hugh; Price, Roger; Kelse, John; 'jim-keith@americanchemistry.com'
Subject: HPV Submission, CAS Number 15890-25-2

Subject: HPV submission, CAS Number 15890-25-2

Dear Sir or Madam:

The R. T. Vanderbilt Company, Inc. is pleased to provide the attached robust summary and test plan for the HPV Challenge Program, AR-201. The sponsored chemical is antimony dipentyldithiocarbamate CAS registry number 15890-25-2.

If you have any questions or need more information, please let me know.

Erin Bendig

Product Risk Manager

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<< File: HPVSubmissionCoverLetterVanlube73.doc >>

<< File: Vanlube73TestPlanAugust26_2005.doc >> << File: 15890252Jan29_2004.rtf >>

15890-25-2TestPlanSeptember20_2005.doc

201-16037

Testing Rationale

Antimony Dipentyldithiocarbamate

CAS Registry Number 15890-25-2

August 26, 2005

Summary

The R. T. Vanderbilt Company, Inc. is pleased to submit this test plan for antimony dipentyldithiocarbamate for review and public comment under the Environmental Protection Agency's High Production Volume (HPV) Challenge Program.

Antimony dipentyldithiocarbamate is used as a petroleum extreme pressure and antiwear agent. We propose the following studies to meet the requirements of the EPA High Production Volume Chemical Testing Program:

Physical/chemical properties: No testing proposed

Environmental fate: Biodegradation (OECD 301B)

Environmental toxicity: Chronic daphnia (OECD 211)

Mammalian toxicity: Repeat dose toxicity to rats with reproductive and developmental assessments (OECD 422)

BACKGROUND

Background Information: Manufacturing and Commercial Applications

Manufacturing

This material has been manufactured for over 30 years. It is manufactured by batch rather than continuous process.

Commercial Applications

Antimony dipentyldithiocarbamate is used in industrial applications as an extreme pressure and antiwear agent. This material eliminates the need for supplemental antioxidants.

Shipping/Distribution

Antimony dipentyldithiocarbamate is shipped extensively throughout the world from manufacturing plants located in North America and Western Europe.

Worker/Consumer Exposure

To the best of our knowledge, all of this material is used by the grease and lubricant industry as performance enhancing additive to enhance load-carrying ability of lubricants and greases and to protect lubricant and greases against oxidative degradation. The lubricant and grease industry has a long safety record and only sophisticated producers handle this material. Most large industrial producers have mechanized materials handling systems, so employee exposure is minimal. The greatest potential for skin exposure is at the packing station at the manufacturing site and, to a lesser extent, during weighing activities at the customer site.

Consumer exposure is minimal. Small amounts (less than 5 mass %) are used lubricant and greases. Consumers are typically industrial or commercial end-users and not the general public. The most likely route of end-user exposure is physical contact to finish lubricants and greases.

Background Information: HPV Endpoints

Physical chemical properties

The physical chemical properties of antimony dipentyldithiocarbamate have not been determined. EPIWIN modeling was used to predict boiling point, vapor pressure, and melting point of this material. Antimony dipentyldithiocarbamate is not water soluble, such that determination of the partition coefficient is not applicable. An estimated partition coefficient value is provided. Table 1 presents the physical chemical data for this material.

No additional testing is proposed.

Environmental Fate

This material contains no hydrolysable functional groups (see Figure 1) and as such hydrolysis data are not applicable. The photodegradation half-life was estimated using EPIWIN; the half-life is predicted to be 27 minutes. The biodegradability of the material is not known. Fugacity modeling indicates this material would be found primarily in sediment and soil, which is consistent with its low water solubility. Table 1 presents the environmental fate data for this material.

An OECD 301B ready biodegradability test is proposed.

Environmental Effects

The acute aquatic toxicity of this material is not known. Due to the low water solubility of this material, acute aquatic toxicity is not expected to be relevant.

A chronic toxicity to daphnia is proposed (OECD 211).

Mammalian Toxicity

Table 1 presents the mammalian toxicity data for this material.

Acute Toxicity: The acute oral LD_{50} for antimony dipentyldithiocarbamate is 16,400 mg/kg. The acute dermal LD_{50} is 16,000 mg/kg.

No additional acute toxicity studies are proposed.

Repeated Dose/Reproductive/Developmental Effects: No data were located for repeated dose toxicity of this material. Effects on reproduction and developmental toxicity data were not located.

An OECD 422 (repeat dose toxicity with screening reproductive and developmental toxicity) is proposed.

Genotoxicity: A *Salmonella*/mammalian-microsome plate incorporation mutagenicity assay and an *in vivo* mouse micronucleus assay have been conducted with antimony dipentyldithiocarbamate. The results of the bacterial mutagenicity test were negative; the mouse micronucleus showed weak positive activity.

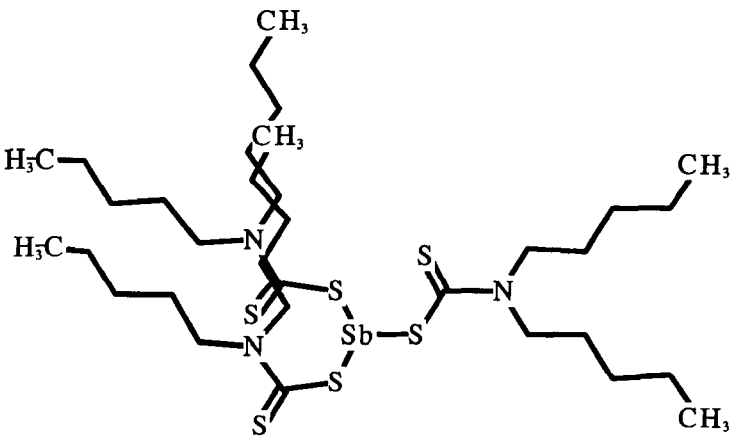
No additional genotoxicity studies are proposed.

Table 1. Matrix of Available and Adequate Data

Test	CAS No. 15890-25-2
Chemical/physical Properties	
Melting Point	345 C (estimated)
Vapor Pressure	2E-19 mm Hg (estimated)
Boiling Point	783 C (estimated)
Partition Coefficient	12.69 (estimated)
Water Solubility	Not soluble (estimated 8.289E-10 mg/L @ 25 C)
Environmental Fate	
Hydrolysis	No hydrolysable functional groups
Photodegradation	t1/2 = 27 minutes
Biodegradation	-
Environmental Transport	Air 0.0652% Water 7.24% Soil 28.5% Sediment 64.2%
Aquatic Toxicity	
Acute Fish	-
Acute Daphnid	-
Algae	-
Mammalian Toxicity	
Acute Oral	16400 mg/kg (rat)
Acute Dermal	16000 mg/kg (rabbit)
Repeated Dose	-
Genotoxicity (*in vitro* -bacteria)	negative
Genotoxicity (*in vivo*)	weak positive
Reproductive/Developmental	-

(-) = No data available or data considered inadequate

Figure 1 Antimony dipentyldithiocarbamate structure



Antimony Dipentyldithiocarbamate

CAS Registry Number 15890-25-2

Test Plan

AUGUST 2005

Physical-Chemical				
Melting Point	**Boiling Point**	**Vapor Pressure**	**Partition Coefficient**	**Water Solubility**
Calc	Calc	Calc	Calc	A

Environmental Fate			
Photodegradation	**Stability in Water**	**Transport/ Distribution**	**Biodegradation**
Calc	NA	Calc	Test

Ecotoxicity			
Acute Toxicity to Fish	**Stability in Water**	**Acute Toxicity to Aquatic Invertebrates (e.g., Daphnia)**	**Chronic Daphnia**
NWS	NWS	NWS	Test

Mammalian Toxicity					
Acute Toxicity	**Bacterial Genetic Toxicity *In Vitro***	**Mammalian Genetic Toxicity *In Vivo***	**Repeat Dose Toxicity**	**Reproductive Toxicity**	**Developmental Toxicity**
A	A	A	Test	Test	Test

Legend	
Symbol	**Description**
Test	Endpoint requirements to be fulfilled with testing
Calc	Endpoint requirement fulfilled based on calculated data
A	Endpoint requirement fulfilled with adequate existing data
NA	Not applicable; no hydrolysable functional groups
NWS	Test not applicable, Test substance is not water soluble

IUCLID

Data Set

Existing Chemical	:	ID: 15890-25-2
CAS No.	:	15890-25-2
EINECS Name	:	tris(dipentyldithiocarbamato-S,S')antimony
EC No.	:	240-028-2
Molecular Formula	:	C33H66N3S6Sb

Producer related part

Company	:	Epona Associates, LLC
Creation date	:	21.01.2004

Substance related part

Company	:	Epona Associates, LLC
Creation date	:	21.01.2004
Status	:	
Memo	:	RT Vanderbilt
Printing date	:	29.01.2004
Revision date	:	
Date of last update	:	29.01.2004
Number of pages	:	18
Chapter (profile)	:	Chapter: 1, 2, 3, 4, 5, 6, 7, 8, 10
Reliability (profile)	:	Reliability: without reliability, 1, 2, 3, 4
Flags (profile)	:	Flags: without flag, confidential, non confidential, WGK (DE), TA-Luft (DE), Material Safety Dataset, Risk Assessment, Directive 67/548/EEC, SIDS

1.0.1 APPLICANT AND COMPANY INFORMATION

1.0.2 LOCATION OF PRODUCTION SITE, IMPORTER OR FORMULATOR

1.0.3 IDENTITY OF RECIPIENTS

1.0.4 DETAILS ON CATEGORY/TEMPLATE

1.1.0 SUBSTANCE IDENTIFICATION

1.1.1 GENERAL SUBSTANCE INFORMATION

1.1.2 SPECTRA

1.2 SYNONYMS AND TRADENAMES

1.3 IMPURITIES

1.4 ADDITIVES

1.5 TOTAL QUANTITY

1.6.1 LABELLING

1.6.2 CLASSIFICATION

1.6.3 PACKAGING

1.7 USE PATTERN

1.7.1 DETAILED USE PATTERN

1.7.2 METHODS OF MANUFACTURE

1.8 REGULATORY MEASURES

1.8.1 OCCUPATIONAL EXPOSURE LIMIT VALUES

1.8.2 ACCEPTABLE RESIDUES LEVELS

1.8.3 WATER POLLUTION

1.8.4 MAJOR ACCIDENT HAZARDS

1.8.5 AIR POLLUTION

1.8.6 LISTINGS E.G. CHEMICAL INVENTORIES

1.9.1 DEGRADATION/TRANSFORMATION PRODUCTS

1.9.2 COMPONENTS

1.10 SOURCE OF EXPOSURE

1.11 ADDITIONAL REMARKS

1.12 LAST LITERATURE SEARCH

1.13 REVIEWS

2.1 MELTING POINT

Value	:	= 345 - °C
Sublimation	:	
Method	:	other: estimated with Epiwin
Year	:	2004
GLP	:	no
Test substance	:	
Result	:	Melting Pt (deg C): 345.05 (Mean or Weighted MP)
Source	:	Epona Associates, LLC
Test condition	:	MPBPWIN v1.41
Test substance	:	SMILES : [Sb](SC(=S)N(CCCCC)CCCCC)(SC(=S)N(CCCCC)CCCCC)SC(=S)N(CCCCC)CCCCC CHEM : Antimony, tris(dipentylcarbamodithioato-S,S)-, (oc-6-11)- CAS NUM: 015890-25-2 MOL FOR: C33 H66 N3 S6 Sb1 MOL WT : 819.03
Reliability	:	(2) valid with restrictions
Flag	:	Critical study for SIDS endpoint

22.01.2004 (2)

2.2 BOILING POINT

Value	:	= 784 - °C at 1013 hPa
Decomposition	:	
Method	:	other: estimated using Epiwin
Year	:	2004
GLP	:	no
Test substance	:	
Result	:	Boiling Pt (deg C): 783.55 (Adapted Stein & Brown method)
Source	:	Epona Associates, LLC
Test condition	:	MPBPWIN v1.41
Test substance	:	SMILES : [Sb](SC(=S)N(CCCCC)CCCCC)(SC(=S)N(CCCCC)CCCCC)SC(=S)N(CCCCC)CCCCC CHEM : Antimony, tris(dipentylcarbamodithioato-S,S)-, (oc-6-11)- CAS NUM: 015890-25-2 MOL FOR: C33 H66 N3 S6 Sb1 MOL WT : 819.03
Reliability	:	(2) valid with restrictions
Flag	:	Critical study for SIDS endpoint

22.01.2004 (2)

2.3 DENSITY

2.3.1 GRANULOMETRY

2.4 VAPOUR PRESSURE

Value	:	< 0 - hPa at 25 °C

Decomposition	:	
Method	:	other (calculated)
Year	:	2004
GLP	:	no
Test substance	:	
Result	:	VP (mm Hg,25 deg C): 2.07E-019 (Modified Grain method)
Source	:	Epona Associates, LLC
Test condition	:	MPBPWIN v1.41
Reliability	:	(2) valid with restrictions
Flag	:	Critical study for SIDS endpoint

22.01.2004 (2)

2.5 PARTITION COEFFICIENT

Partition coefficient	:	octanol-water
Log pow	:	= 12.7 - at 25 °C
pH value	:	-
Method	:	other (calculated)
Year	:	2004
GLP	:	no
Test substance	:	
Result	:	Log Kow (KOWWIN v1.67 estimate) = 12.69
Source	:	Epona Associates, LLC
Test condition	:	KOWWIN v1.67 estimate
Test substance	:	SMILES : [Sb](SC(=S)N(CCCCC)CCCCC)(SC(=S)N(CCCCC)CCCCC)SC(=S)N(CCCCC)CCCCC CHEM : Antimony, tris(dipentylcarbamodithioato-S,S)-, (oc-6-11)- CAS NUM: 015890-25-2 MOL FOR: C33 H66 N3 S6 Sb1 MOL WT : 819.03
Reliability	:	(2) valid with restrictions
Flag	:	Critical study for SIDS endpoint

22.01.2004 (2)

2.6.1 SOLUBILITY IN DIFFERENT MEDIA

Solubility in	:	Water
Value	:	- at °C
pH value	:	-
concentration	:	at °C
Temperature effects	:	
Examine different pol.	:	
pKa	:	at 25 °C
Description	:	not soluble
Stable	:	
Deg. product	:	
Method	:	other: estimated using Epiwin
Year	:	2004
GLP	:	no
Test substance	:	
Result	:	Water Sol Estimate from Fragments: Wat Sol (v1.01 est) = 0.0008742 mg/L Water Solubility at 25 deg C (mg/L): 8.289e-010

Source	:	Epona Associates, LLC
Test condition	:	Water Solubility Estimate from Log Kow (WSKOW v1.41): log Kow used: 12.69 (estimated); no-melting pt equation used
Test substance	:	SMILES : [Sb](SC(=S)N(CCCCC)CCCCC)(SC(=S)N(CCCCC)CCCCC)SC(=S)N(CCCCC)CCCCC CHEM : Antimony, tris(dipentylcarbamodithioato-S,S)-, (oc-6-11)- CAS NUM: 015890-25-2 MOL FOR: C33 H66 N3 S6 Sb1 MOL WT : 819.03
Reliability	:	(2) valid with restrictions
Flag	:	Critical study for SIDS endpoint

22.01.2004 (1)

2.6.2 SURFACE TENSION

2.7 FLASH POINT

2.8 AUTO FLAMMABILITY

2.9 FLAMMABILITY

2.10 EXPLOSIVE PROPERTIES

2.11 OXIDIZING PROPERTIES

2.12 DISSOCIATION CONSTANT

2.13 VISCOSITY

2.14 ADDITIONAL REMARKS

3.1.1 PHOTODEGRADATION

DIRECT PHOTOLYSIS		
Halflife t1/2	:	= 26 - minute(s)
Degradation	:	- % after
Quantum yield	:	
INDIRECT PHOTOLYSIS		
Sensitizer	:	
Conc. of sensitizer	:	
Rate constant	:	ca. .000000000286 cm^3/(molecule*sec)
Degradation	:	- % after
Deg. product	:	
Method	:	other (calculated)
Year	:	2004
GLP	:	no
Test substance	:	
Result	:	Hydroxyl Radicals Reaction: OVERALL OH Rate Constant = 286.9573 E-12 cm3/molecule-sec Half-Life = 0.037 Days (12-hr day; 1.5E6 OH/cm3) Half-Life = 26.837 Min Ozone Reaction: No Ozone Reaction Estimation
Source	:	Epona Associates, LLC
Test condition	:	Atmospheric Oxidation (25 deg C) [AopWin v1.91]
Test substance	:	SMILES : [Sb](SC(=S)N(CCCCC)CCCCC)(SC(=S)N(CCCCC)CCCCC)SC(=S)N(CCCCC)CCCCC CHEM : Antimony, tris(dipentylcarbamodithioato-S,S)-, (oc-6-11)- CAS NUM: 015890-25-2 MOL FOR: C33 H66 N3 S6 Sb1 MOL WT : 819.03
Reliability	:	(2) valid with restrictions

29.01.2004 (2)

3.1.2 STABILITY IN WATER

3.1.3 STABILITY IN SOIL

3.2.1 MONITORING DATA

3.2.2 FIELD STUDIES

3.3.1 TRANSPORT BETWEEN ENVIRONMENTAL COMPARTMENTS

Type	:	fugacity model level III
Media	:	
Air	:	% (Fugacity Model Level I)
Water	:	% (Fugacity Model Level I)
Soil	:	% (Fugacity Model Level I)
Biota	:	% (Fugacity Model Level II/III)

Soil : % (Fugacity Model Level II/III)
Method : other: estimated using Epiwin
Year : 2004

Result : Level III Fugacity Model:

	Mass Amount (percent)	Half-Life (hr)	Emissions (kg/hr)
Air	0.0652	0.894	1000
Water	7.24	360	1000
Soil	28.5	360	1000
Sediment	64.2	1.44e+003	0

Persistence Time: 627 hr

Source : Epona Associates, LLC
Test substance : SMILES :
[Sb](SC(=S)N(CCCCC)CCCCC)(SC(=S)N(CCCCC)CCCCC)SC(=S)N(CCCCC)CCCCC
CHEM : Antimony, tris(dipentylcarbamodithioato-S,S)-, (oc-6-11)-
CAS NUM: 015890-25-2
MOL FOR: C33 H66 N3 S6 Sb1
MOL WT : 819.03
Reliability : (2) valid with restrictions
Flag : Critical study for SIDS endpoint
22.01.2004 (2)

3.3.2 DISTRIBUTION

3.4 MODE OF DEGRADATION IN ACTUAL USE

3.5 BIODEGRADATION

3.6 BOD5, COD OR BOD5/COD RATIO

3.7 BIOACCUMULATION

3.8 ADDITIONAL REMARKS

4.1 ACUTE/PROLONGED TOXICITY TO FISH

4.2 ACUTE TOXICITY TO AQUATIC INVERTEBRATES

4.3 TOXICITY TO AQUATIC PLANTS E.G. ALGAE

4.4 TOXICITY TO MICROORGANISMS E.G. BACTERIA

4.5.1 CHRONIC TOXICITY TO FISH

4.5.2 CHRONIC TOXICITY TO AQUATIC INVERTEBRATES

4.6.1 TOXICITY TO SEDIMENT DWELLING ORGANISMS

4.6.2 TOXICITY TO TERRESTRIAL PLANTS

4.6.3 TOXICITY TO SOIL DWELLING ORGANISMS

4.6.4 TOX. TO OTHER NON MAMM. TERR. SPECIES

4.7 BIOLOGICAL EFFECTS MONITORING

4.8 BIOTRANSFORMATION AND KINETICS

4.9 ADDITIONAL REMARKS

5.0 TOXICOKINETICS, METABOLISM AND DISTRIBUTION

5.1.1 ACUTE ORAL TOXICITY

Type	:	LD50
Value	:	= 16400 - mg/kg bw
Species	:	rat
Strain	:	other: albino
Sex	:	male/female
Number of animals	:	36
Vehicle	:	other: cottonseed oil
Doses	:	1.0, 2.1, 4.1, 8.2, 11.6, and 16.4 gm/kg
Method	:	
Year	:	1961
GLP	:	no
Test substance	:	
Result	:	At the higher levels of dosage the rats showed symptoms of depression and excessive laxation, and at the highest level also became prostrated. These symptoms subsided within 24 hours. The animals appeared normal throughout the remainder of the observation period. No deaths occurred, and the post-mortem examinations disclosed no gross pathology.
Source	:	Epona Associates, LLC
Test condition	:	Six groups of rats (3/sex/dose) were fasted for approximately 20 hours and orally dosed with the test material in the form of 10 to 40 per cent suspensions in cotonseed oil. Animals were observed for appearance, behavior, body weight and mortality for 14 days and then sacrificed and examined grossly.
Test substance	:	Antimony dialkyldithiocarbamate
Reliability	:	(2) valid with restrictions
Flag	:	Critical study for SIDS endpoint

29.01.2004 (4)

5.1.2 ACUTE INHALATION TOXICITY

5.1.3 ACUTE DERMAL TOXICITY

Type	:	LD50
Value	:	= 16000 - mg/kg bw
Species	:	rabbit
Strain	:	other: albino
Sex	:	male/female
Number of animals	:	12
Vehicle	:	water
Doses	:	0.25, 1, 4, 8 and 16 gm/kg
Method	:	
Year	:	1960
GLP	:	no data
Test substance	:	
Result	:	There was no mortality and all animals gain in body weight and appeared to be in good health during the observation period. Slight localized erythema was observed at the end of the 24-hour exposure period at all dose levels. This receded after the fourth day and the skin was normal at 7

days. Post-mortem examinations disclosed no gross pathology.

Source	:	Epona Associates, LLC
Test condition	:	Five groups of rabbits (2 males/dose at the 4 lower doses; 3 males and 1 female at the highest dose) were depilated over the entire trunk and an area of about 1 square inch was abraded. Doses of the test material in the form of 25 to 60 per cent aqueous pastes were applied to the skin and maintained for a 24-hour period under a plastic sleeve. After 24 hours, the excess material was washed off and the animals were observed for appearance, behavior, body weight, and mortality for 14 days. Skin irritation was scored according to Draize. The animals were sacrificed and examined grossly after the observation period.
Test substance	:	Antimony dialkyldithiocarbamate
Reliability	:	(2) valid with restrictions
Flag	:	Critical study for SIDS endpoint

29.01.2004 (3)

5.1.4 ACUTE TOXICITY, OTHER ROUTES

5.2.1 SKIN IRRITATION

5.2.2 EYE IRRITATION

5.3 SENSITIZATION

5.4 REPEATED DOSE TOXICITY

5.5 GENETIC TOXICITY 'IN VITRO'

Type	:	Ames test
System of testing	:	Salmonella strains TA98, TA100, TA1535, TA1537 and TA1538
Test concentration	:	100, 333, 1000, 3333, 5000 ug/plate
Cycotoxic concentr.	:	> 5000 ug/plate
Metabolic activation	:	with and without
Result	:	negative
Method	:	other: Ames et al (1975)
Year	:	1992
GLP	:	yes
Test substance	:	
Result	:	The results of the dose range finding study indicate that a slight precipitate of the test substance forms, but no appreciable toxicity was observed. In the mutagenicity assay no positive responses were observed with any of the tester strains in the presence or absence of metabolic activation. Precipitate, but no appreciable toxicity was observed.
Source	:	Epona Associates, LLC
Test condition	:	The assay was performed in two phases using the plate incorporation method, in the presence and absence of metabolic activation. The first phase, the dose range finding study, was used to establish the dose range for the mutagenicity assay. In the dose range finding study, the maximum dose tested was 5000 ug/plate. The test substance was dissolved in acetone. The second phase, the mutagenicity assay, was used to evaluate the mutagenicity of the test substance. In the mutagenicity assay, the dose

levels were 100, 333, 1000, 3333, 1000 and 5000 ug/plate.

Test substance : Antimony dipentyldithiocarbamate; lot EVR-384-281
Reliability : (1) valid without restriction
Flag : Critical study for SIDS endpoint
29.01.2004 (6)

5.6 GENETIC TOXICITY 'IN VIVO'

Type : Micronucleus assay
Species : mouse
Sex : male/female
Strain : ICR
Route of admin. : i.p.
Exposure period :
Doses : 1250, 2500 or 5000 mg/kg
Result :
Method : OECD Guide-line 474 "Genetic Toxicology: Micronucleus Test"
Year : 1992
GLP : yes
Test substance :

Result : In the absence of mortality in the pilot study, the maximum dose level used for the micronucleus study was 5000 mg/kg. No mortality or clinical signs were observed in the micronucleus assay. Bone marrow cells, collected at 24, 48, or 72 hours after treatment, did not show a reduction in the ratio of polychromatic erythrocytes to total erythrocytes suggesting the test substance did not induce bone marrow toxicity. No significant increase in micronucleated polychromatic erythrocytes was observed at 24, 48 or 72 hours after dose administration in the male mice. A significant increase in micronucleated polychromatic erythocytes was observed at dose levels of 2500 and 5000 mg/kg in female mice, only at the 48 hour sampling time.

In the confirmatory assay, no mortality or clinical signs were observed in either male or female animals. No reduction in the ratio of polychromatic erythrocytes to total erythrocytes was observed in any treatment group, suggesting the test substance did not induce bone marrow toxicity. No significant increase in micronucleated polychromatic erythrocytes was observed in the male mice; a significant increase in micronucleated polychromatic erythrocytes was observed at dose levels of 2500 and 5000 mg/kg in female animals.

Source : Epona Associates, LLC
Test condition : Male and female ICR mice were exposed to 1250, 2500 or 5000 mg/kg of the test substance which was administered in a total volume of 20 ml/kg as a single ip injection. The vehicle used was corn oil. For the micronucleus assay, animals were assigned to 13 groups of 5 animals/sex. An additional group of 5 animals/sex was designated as replacement animals and were dosed with the high dose of test substance in case of mortality prior to scheduled sacrifice. 5 animals/sex/group were sacrificed after 24, 48 and 72 hours following dose administration. 5 animals/sex were administered a positive control (cyclophosphamide, 30 mg/kg) and sacrificed after 24 hours.

Polychromatic erythrocytes were scored for the presence of micronuclei. The number of micronucleated normocytes in the field of 1000 polychromatic erythrocytes was enumerated. The proportion of polychromatic erythrocytes to total erythocytes counted was also recorded.

In the confirmatory micronucleus assay 6 animals per sex were assigned to four groups (vehicle control, 2500 and 5000 mg/kg, and positive control) and sacrificed after 48 hours. Bone marow cells were collected at

examined for micronucleated polychromatic erythrocytes.

Test substance : Antimony dipentyldithiocarbamate; lot EVR-384-281

Conclusion : The results of the initial and confirmatory assay indicate that under the conditions of this study, the test substance did induce a significant increase in micronucleated polychromatic erythrocytes in female ICR mice. Significant inter-animalvariability was observed in the dose groups that were signiifacntly elevated above the vehicle control group. The test substance was concluded to be weakly positive in the mouse micronucleus assay.

Reliability : (1) valid without restriction

Flag : Critical study for SIDS endpoint

29.01.2004 (5)

5.7 CARCINOGENICITY

5.8.1 TOXICITY TO FERTILITY

5.8.2 DEVELOPMENTAL TOXICITY/TERATOGENICITY

5.8.3 TOXICITY TO REPRODUCTION, OTHER STUDIES

5.9 SPECIFIC INVESTIGATIONS

5.10 EXPOSURE EXPERIENCE

5.11 ADDITIONAL REMARKS

6.1 ANALYTICAL METHODS

6.2 DETECTION AND IDENTIFICATION

7.1 FUNCTION

7.2 EFFECTS ON ORGANISMS TO BE CONTROLLED

7.3 ORGANISMS TO BE PROTECTED

7.4 USER

7.5 RESISTANCE

8.1 METHODS HANDLING AND STORING

8.2 FIRE GUIDANCE

8.3 EMERGENCY MEASURES

8.4 POSSIB. OF RENDERING SUBST. HARMLESS

8.5 WASTE MANAGEMENT

8.6 SIDE-EFFECTS DETECTION

8.7 SUBSTANCE REGISTERED AS DANGEROUS FOR GROUND WATER

8.8 REACTIVITY TOWARDS CONTAINER MATERIAL

(1) Water Solubility Estimate from Log Kow (WSKOW v1.41)

(2) EPIWIN v. 3.11

(3) Food and Drug Research Laboratories, Inc. (1961) The Acute Dermal Toxicity for Rats of Antimony Diamyl Dithiocarbamate (Compound OD 596). Laboratory No. 81447

(4) Food and Drug Research Laboratories, Inc. (1961) The Acute Oral Toxicity for Rats of Compound OD 596. Laboratory No. 81447A

(5) Putnam, DI and Morris, MJ (1992) Micronucleus Cytogenetic Assay in Mice, Antimony Dipentyldithiocarbamate. Microbiological Associates, Inc. Study Number TA214.122

(6) San, RHC and Sly, JE (1992) Salmonella/Mammalian-Microsome Plate Incorporation Mutagenicity Assay (Ames Test), Antimony Dipentyldithiocarbamate. Microbiological Assocaites, Inc. Study Number TA214.501.

10.1 END POINT SUMMARY

10.2 HAZARD SUMMARY

10.3 RISK ASSESSMENT